

Musket and Pike Users Manual

Musket and Pike

Introduction

Musket and Pike is a series of games that cover the battles and campaigns associated with the era where muskets and pikes dominated the fighting. Each game can be played alone versus the computer, or against a human opponent using Play-By-E-Mail and Network Play (over a Local Area Network or the Internet). Each game is turn-based with each side moving and firing in their designated phase. A series of battles can be played in turn forming a complete campaign of the war.



The documentation for Musket and Pike is divided up into several parts:

- The [Getting Started Help File](#) covering the basics of play.
- This User Manual covering the general game.
- The [Main Program Help File](#) covering issues specific to the main game engine.
- The [Scenario Editor Help File](#) covering issues specific to the scenario editor.
- The [Campaign Editor Help File](#) covering issues specific to the campaign editor.

All documentation other than the Getting Started Help File exists in two forms. The on-line version, a Windows Help file, is indexed and has links between related topics. The printable version is in the form of a Microsoft Word™ Doc file. This file is best printed using a current version of Microsoft Word rather than Wordpad. The Getting Started Help File can be printed directly from Windows Help.

A note on terminology: Throughout the game the terms Side A and Side B are used in reference to the two sides in each battle.

Quick Overview

This section provides a quick overview to playing the game and the functions of the main program. For more information, see the various sections on the Phases, Menus, Dialogs, and Other Features



found in the help Contents.

Sides

A Musket and Pike Battle is played by two sides. A battle may be played by one person against the computer, or by two persons using a variety of modes such as Two-Player Hot Seat, [Play-By-E-Mail](#) (PBEM), or [Network Play](#). See the Modes Menu in the Main Program Help File for more information on these modes.

Hexes

Each battle is played on a map made up of hexagons (hexes). Each hex measures 100 meters across. Elevations are given in either feet or meters, depending on the game in the series being played. Each hex contains terrain which affects movement and combat in that hex. See the Hex Info Area in the Main Program Help File for more information on terrain and its effects.

Turns

Each battle is conducted in turns each of which typically represents 15 minutes of real time, although this may vary by scenario and may be 10 minutes depending on the game in the series being played. Each player has a number of units under their control, some of which are on the map at the beginning of the battle, while others arrive as Reinforcements. See the Units Menu in the Main Program Help File for more information.

Units

Typically, each unit is a battalion of Infantry, a battalion of Cavalry, or a battery of Artillery. Each Infantry and Cavalry unit has a strength value in increments of single men, while each Artillery unit has a strength value in number of guns. In addition there are specialized units such as Leaders and Supply Wagons. Infantry and Artillery units are capable of firing on enemy units and each has a range value indicating the number of hexes that unit may fire. See the Hex Info Area in the Main Program Help File for more information on these values.

Turns vs. Phases

Each battle can be fought in one of two modes. In the default Turn-based mode, each player moves, fires, and melees using units under his control in his turn. There are only a few restrictions on this:

- After firing, a unit cannot move for the remainder of the turn, but may melee in that turn.
- After meleeing, a unit cannot move or fire for the remainder of the turn.

The purpose of these restrictions is to help ensure that the resulting battles are fought in a manner similar to historical battles and with less flexibility that would be found in more modern combat. As each player performs actions in their turn, Defensive Fire is possible by the opposing side under the control of the computer. In the Phase-based mode, invoked using the Manual Defensive Fire Optional Rule, each turn is played as described in the next section.

Phases

Under the Manual Defensive Fire Option, each turn of the battle is divided into Phases. A Phase will be under the control of one side or the other. A complete turn is made up of a total of 8 phases. Thus the phases will be:

- Side A Movement Phase
- Side B Defensive Phase
- Side A Offensive Fire Phase
- Side A Melee Phase
- Side B Movement Phase
- Side A Defensive Phase
- Side B Offensive Fire Phase
- Side B Melee Phase

At the beginning of each Phase (under Local Control) the Phase Dialog is displayed (see the Main Program Help File). In each phase only certain actions are possible. Movement is restricted to the Movement Phase and firing is restricted to the Fire Phases, Defensive and Offensive. The Melee Phase allows hexes containing enemy units to be assaulted and possibly captured. See [Movement](#), [Defensive Fire](#), [Offensive Fire](#), [Cavalry Charges](#), and [Meleeing](#) for more information.

Selecting Units

Most actions require that units first be selected. Clicking on a hex on the map with the left mouse button causes that hex to become the current Hot Spot. The units in the current Hot Spot are displayed in the Hex Info area (see the Main Program Help File). These units may be selected by clicking on their pictures in the Hex Info Area with the left mouse button. Alternatively, all units in a hex may be selected by double clicking on the hex with the left mouse button. Once selected, units may be moved in the Movement Phase by right clicking on the adjacent hex to move to. Selected units may fire in a Fire Phase by right clicking on the target hex.

End Of Game

As each player finishes their turn or phase, they advance the battle to the next turn or phase by using the **Next Turn** or **Next Phase** function of the Turn/Phase Menu (see the Main Program Help File). This continues until the time limit specified in the scenario at which point the win, lose, or draw outcome of the battle is determined. Winning and losing are determined by a calculation based on the ownership of certain **Objective** hexes and the relative losses of the two sides. See the **Victory** selection of the Info Menu (in the Main Program Help File) for more information on victory conditions.

Unit Types

This section describes many of the various unit types that are in the game. Understanding the various unit types, their abilities and their restrictions, is key to successfully mastering the tactics. Further detail on these unit types can be found in the succeeding sections of this manual.



Leaders

Leaders represent individuals that command the various forces. Leaders are used to improve the effectiveness of the forces under their command and to support other commanders subordinate to them. In general, the presence of commanders improves the Morale of units and thus increases their fighting abilities.



Infantry Units

Infantry units have a strength measured in number of men. They have a Quality value which affects their effectiveness in combat. While some Infantry are capable of ranged fire, other troops only have weapons which increase their effectiveness in melee.



Cavalry Units

Cavalry units have a strength measured in number of men. Depending on their weapon, they may be able to fire on enemy units while mounted. In addition, Dragoons can dismount and use their weapons while on foot. Most cavalry can effectively attack enemy units using melee attacks, especially cavalry charges, although dragoons and irregular cavalry are primarily used to screen and scout.



Artillery Units

Artillery units have a strength measured in number of guns. They can be either Limbered or Unlimbered. When Limbered, they can move but cannot fire. When Unlimbered, they can fire, but not move other than to change their facing.



Skirmisher Units

Skirmisher units represent detachments of Light infantry from a main Infantry unit. Skirmishers are often used to shield a main position against an enemy attack or to hold obstructed terrain.



Squadron/Platoon Units

Squadron and Platoon units represent detachments from a main Cavalry unit. They can be used for scouting or to block enemy movement.



Supply Wagons

Supply Wagons are used to resupply Infantry units that become Low or Out of Supply. For each unit of strength, they can resupply 10 men. They have no ability to attack the enemy but they can be captured by the enemy.



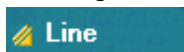
Unit Formations

This section describes the various formations that units may have. Each formation has a purpose and strengths and weaknesses in the game. Further detail on these formations and rules that apply to them can be found in subsequent sections in this manual. In each instance below, the icon and description you see in the Unit Picture when a unit is in the corresponding formation is shown.



Line Formation

Line formation can be used by Infantry and Dragoon Cavalry units. It has increased firepower over other formations and is less vulnerable to enemy fire. It is a good defensive formation, but is vulnerable to enemy Cavalry charges.



Column Formation

Column formation can be used by Infantry units. It has increased mobility over other formations, but has less firepower than Line formation. It is a good offensive formation, but also is vulnerable to enemy Cavalry charges. Column formation is also the only formation that Supply Wagons can have.



Block Formation

Block formation is the best defensive formation against cavalry charges, but has poor mobility. It is also the only attack formation available to pikemen.



Mounted Formation

Mounted formation is the standard formation for Cavalry. The formation has good mobility and can be used to conduct Cavalry charges. Dragoon Cavalry can dismount and change into Line formation.



Limbered Formation

Limbered formation is used by Artillery units and represents Artillery ready to be moved. While this is the formation you must use to move Artillery, it cannot fire in this formation.



Unlimbered Formation

Unlimbered formation is used by Artillery units and represents Artillery ready to fire. While in this formation, Artillery units cannot move, but may only change Facing.



Skirmish Formation

Skirmish formation is used exclusively by Skirmisher units. In this formation, Skirmishers can move and fire in any direction.



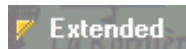
Shortened Line Formation

Shortened Line formation is the name in this game given to Infantry and Artillery units in Line formation that have sufficient strength to go into Extended Line Formation.



Extended Line Formation

Extended Line formation is used by large Infantry or Artillery units to extend their formation over more than one hex. When a unit is in Extended Line formation, it will consist of two counters in adjacent hexes.



Unit Values

Piquiers	Infantry
2e Bande Suisse	Fanatical +2
Suisse	Pike
	Armor 1
	Melee 3
	Can Block
	No Line
	Victory 15

Units can have special values and attributes which determine which functions they can perform or how they are rated in the game.

Armor Value

The Armor value is a rating given to a unit to represent any body armor the men of that unit normally wear. It is used to determine the lethality of [fire](#) against that unit and to modify [melee](#) losses of that unit.

Melee Value

The Melee value is used to determine how effective the unit will be in [melee](#) combat.

Victory Value

The Victory value determines how many victory points are associated with losses of that unit in determining the win/lose outcome of the battle.

Can Block

Signifies that the unit can change into Block formation.

No Line

Signifies that the unit can not change into Line formation.

Assault Pen

Signifies that this unit will only have half effectiveness when meleeing into hexes that contain Trenches or out of hexes that contain Abatis.

Special Units

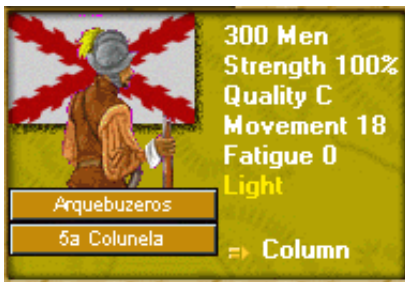
In addition to the standard unit types of Infantry, Artillery, and Cavalry, there are special unit types that apply. These special types have special or restrictive rules that apply to them that are described in detail in subsequent sections of this manual.



Light Infantry

While a normal Infantry battalion only had a single company of Light Infantry, certain Infantry battalions

consisted entirely of Light Infantry. These battalions can deploy entirely into Skirmisher units.



Guard Infantry

Guard units are usually the best units and generally have a higher Quality rating than other units. Like Light Infantry, a Guard unit can deploy entirely into Skirmisher units.



Restricted Infantry

Restricted infantry are close order melee infantry which are unable to deploy Skirmishers.



Heavy Cavalry

Heavy Cavalry units have increased ability in [Melees](#).



Irregular Cavalry

Irregular Cavalry represents a type of untrained cavalry that does not have an increased effectiveness against formed units during a [Cavalry Charge](#).



Dragoons

Dragoons are a type of cavalry that are able to dismount and fight on foot. They often represent a type of mounted infantry rather than cavalry proper and so may not be very good at charging or meleeing.



Horse Artillery

Horse Artillery refers to Artillery units which have sufficient horses to carry not only the guns but the crews manning the guns. This is in contrast to Foot Artillery, the normal Artillery type, where the crews must march on foot when the unit moves. Horse Artillery units can fire after moving, unlike normal Foot Artillery. Horse Artillery is also used in the game to represent ultra light guns.



Pioneer Units

Pioneer units represent units capable of engineering functions. They can be used to repair bridges (see [Movement](#)).



Movement



Movement involves moving units under the control of the current player as well as performing certain functions such as changing facing and some changes of formation (see the Command Menu in the Main Program Help File). No combat occurs during the Movement Phase.

Each unit is allocated a certain movement allowance at the beginning of the player turn. Each unit may use some, all, or none of its movement allowance during that turn. Unused movement allowance points are not accumulated. Note that depending on the scenario, certain units may be Fixed which prevents them from being moved.

How To Move

Units must be selected before they are moved. Once selected, units may be moved to an adjacent hex by clicking on that hex with the right mouse button. Alternatively, it is possible to move the selected units to a nonadjacent hex by clicking the starting hex with the left mouse button, dragging the mouse to the ending hex while holding the mouse button down, and then releasing the mouse button. This will cause the computer to calculate a minimum-distance path from the starting hex to the ending hex and automatically move the selected units according to that path. Note that not all moves are possible depending on the terrain and movement allowance of the selected units.

Movement costs vary depending on the terrain being moved into and any hexsides being crossed. In general it is not possible to cross a **Creek** hexside except at a Ford or Bridge.

Formation

Infantry units may move while either in Line, Column, or Block formation although movement is more efficient in Column. The formation of Infantry units may be changed using the **Change Formation** function of the Command Menu. Artillery units must be Limbered in order to move. Non-Horse Artillery cannot fire in the same turn that it unlimbers or changes facing. Formation changes are performed using the **Change Formation** function of the Command Menu. Non-Dragoon Cavalry and Leaders are always Mounted.

Obstructed Terrain and Hexsides

Any terrain other than Clear, Building, or Field is considered Obstructed. Likewise, the hexsides Hedge, Stone Wall, Embankment, Stream, Gate, and Fort are considered Obstructed hexsides. Infantry units in Line formation that enter Obstructed terrain or cross an Obstructed hexside become Disordered. Likewise, Cavalry units not using Road Movement that enter Obstructed terrain or cross an Obstructed hexside become Disordered.

Disordered Movement

When a unit is Disordered, it has a reduced movement allowance. Normally this will be 2/3 of the normal movement allowance, but the actual value is determined by Parameter Data.

Road Movement

Depending on the scenario, there will be roads, paths, and main roads on the battlefield. These facilitate movement under certain circumstances. In order to take advantage of Road Movement, the unit moving must be in Column formation (for Infantry), Limbered (for Artillery), mounted Cavalry, or Leaders. In addition, no more than one non-Leader unit may move through the hex containing the road, path, or main road at one time.

Abatis



A hex may contain Abatis. A unit moving into a hex containing Abatis automatically becomes Disordered unless it is using Road Movement. In addition, the unit pays a movement penalty and may suffer a fire modifier when fired upon depending on the value of the [Parameter Data](#).

Trenches

Trenches may be placed in a scenario using the Scenario Editor. A unit moving into a Trench hex from a non-Trench hex automatically becomes Disordered unless it is using Road Movement. A unit pays a movement cost to enter a Trench hex, determined by Parameter Data. While in a Trench hex, a unit receives a fire modifier when fired upon determined by Parameter Data.

Bridges



Normally movement into Water hexes is prohibited. However, depending on the scenario, Bridges may be present that allow Water hexes to be crossed. In order to move onto a Bridge, the unit must be in Column formation (Limered for Artillery) and no more than one non-Leader

unit may attempt to enter or leave the Bridge hex at one time.

For a unit to cross a bridge that has been damaged, the bridge must have a minimum strength value. This minimum strength value depends on the type of unit trying to cross according to the following:

- For leaders and infantry units, the bridge must have a minimum strength of **50**.
- For cavalry units, the bridge must have a minimum strength of **100**.
- For artillery and supply wagons, the bridge must have a minimum strength of **150**.

Has Boats



It is possible in some scenarios for units to be flagged as **Has Boats**. When this occurs, the movement value of the unit is followed with the letter **B**. When a unit has boats, then it can move into a water hex at a cost of 8 movement points. Leaders without the Has Boats feature can still move into water hexes if they move with units that have boats and do not leave those

units while crossing the water hexes.

Column Movement

It is possible to move several units at a single time using Column Movement. The units to be moved should all belong to the same organization and should be lined up in one hex after another, or in the same hex as they would be when first placed as reinforcements. You should double click on the head of the column to select all units in that hex. Then either

- Drag and release while holding down the left mouse button and the **Alt** key, or
- Right click in an adjacent hex, while holding down the **Alt** key.

This will move the first unit in the column towards the destination hex while moving each unit in turn along the same path.

Note that Column Movement is applied to units based on their organization and that the organization is determined by the top unit of those selected. For example, if the a unit from a particular Brigade is selected at the head of the column, then Column Movement will move all other units of the Brigade in the same hex or in hexes leading from that hex. Likewise, if a higher level leader is the top unit selected, the Column Movement will move all units from the leader's organization starting from the first hex. In this way it is possible to easily bring larger organizations on the map as reinforcements and march them into battle with a small effort.

Night Turns

Units which attempt to move in Line formation during Night turns automatically become Disordered.

Fixed Units



Certain units may start a scenario as Fixed. Fixed units may fire and may change formation, may not move until they are Released. This can occur in one of several ways:

- Units that are fired upon, or meleed against, are automatically Released.
- Depending on the scenario, there may be Releases of Fixed units built into the

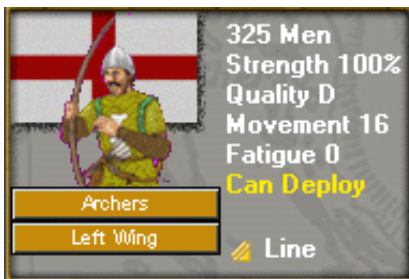
scenario which will release the units at specified times.

- Alternatively, there may be Releases in a scenario that are flagged as causing the specified units to become Fixed.
- If a Fixed unit is spotted by an enemy unit that is 5 hexes away or closer, then it automatically becomes Released.

Skirmishers



Skirmisher units are small detachments you deploy from larger Infantry units. Skirmisher units have no facing and can move and fire in any direction. In general, an Infantry unit can deploy only a single Skirmisher unit, representing the Light company of the battalion. However, units designed as **Light** or **Guard** can deploy their entire unit into Skirmisher units.



Skirmisher units can only be deployed or recalled in the Movement Phase. An Infantry unit must be designated as **Can Deploy** (or be a Light or Guard unit) to be eligible to deploy a Skirmisher unit. To deploy a Skirmisher unit, select the main Infantry unit and select the Change Skirmisher/Squadron command from the Command Menu. Before a Skirmisher unit

can be recalled, it must be stacked in the same hex as its parent Infantry unit. To recall the Skirmisher unit, select it and choose the Change Skirmisher/Squadron command from the Command Menu.

Other restrictions apply to Skirmisher units and their deployment or recall:

- A Disordered or Routed unit cannot deploy or recall Skirmishers.
- Militia units cannot deploy Skirmishers.

- Units which are designated as being Restricted cannot deploy Skirmishers.
- Non-Light units which are below the strength required to form a Skirmisher unit with at least 25 men cannot deploy Skirmishers.

Bridge Repair



Pioneer units can be used to repair bridges. When repairing a bridge, the Pioneer unit is shown as **Repairing**. The Repairing state of a Pioneer unit can be toggled using the Toggle Bridge Repairing option of the Command Menu. To perform repair functions, a Pioneer unit cannot be Disordered or Routed. At the beginning of each turn, a Pioneer unit restores 1

strength point to the bridge for each 25 men in the unit (A Pioneer unit with less than 25 men cannot repair a bridge). A Pioneer unit cannot repair a bridge so that its strength is above 200. A Pioneer unit that is repairing a bridge cannot recover Fatigue.

To repair a bridge, the Pioneer unit must be facing so that the Bridge hex is forward of the unit, either to the left or right as indicated in this graphic. The Bridge hex being repaired cannot be occupied by the enemy, but can be occupied by friendly forces.



Threat Values

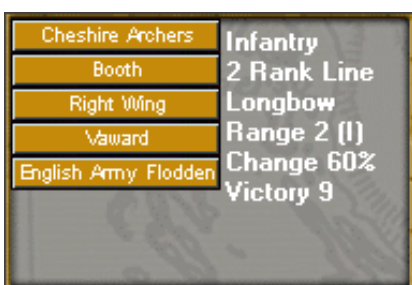
Any attempt to change formation, by any non-Artillery unit, may fail based on a certain chance computed at the time the change is attempted. The probability depends on several factors, one of which is the Threat Value. The Threat Value is a value determined by the presence of enemy forces. The Threat Value is the sum of all individual Threat Values determined by enemy forces within a certain range of the unit attempting the formation change. The Threat Value exerted by an individual unit is based on the unit type as follows:

- The Threat Value exerted by an Infantry unit of strength S is $(2 * S) / 100$ at distance of 1 hex and $S / 100$ at a distance of 2 hexes.
- The Threat Value exerted by an Artillery unit of Strength S is $2 * S$ at distances up to 2 hexes and S at distances up to 4 hexes.
- The Threat Value exerted by a Cavalry unit of strength S is $(3 * S) / 100$ at distances up to 2 hexes, $(2 * S) / 100$ at distances up to 4 hexes, and $S / 100$ at distances up to 6 hexes.

Routed and Disordered units do not exert a Threat Value. Units only exert a Threat Value in hexes they are Facing.



The total Threat Value on a given hex can be found by right-clicking in the Hex Info Area. The Threat Value is the second value in the center of the Terrain box (the first being the total stacking value in the hex). In the example displayed here, the Threat Value in the current hex is 6.



When a non-Artillery unit attempts to change formation, then the Threat Value in its hex is used to determine whether the change succeeds. If the change fails, then the unit becomes Disordered, or if the unit is already Disordered, the unit becomes Routed. Given a unit with Morale Value of M and a Threat Value in its hex of T, then the probability that a

formation change will succeed is given by:

$$20 * M / (20 * M + T)$$

When this probability is not 100%, then its value is displayed in the Unit Box area when you right click on the Unit Picture. In this example, the unit has a probability of a successful formation change under the current conditions of 94%. See the section on [Morale](#) for a discussion of Morale Values.

Zone-of-Control



The two facing hexes in front of a unit as shown in the illustration are called its Zone-of-Control. However, Leaders, Skirmishers, Routed units, Limbered Artillery, Uncrewed Artillery, and Supply Wagons do not have a Zone-of-Control. When a unit enters the Zone-of-Control of an enemy unit, it cannot move anymore in that Movement Phase or Turn. Under normal rules, a unit cannot retreat through an enemy

Zone-of-Control.

Artillery Setup

Certain artillery units require setup after they have moved before they are ready to fire. When such an artillery unit unlimbers, then it will be flagged as "SETTING UP". On subsequent turns, there is a chance that the unit will become setup and thus eligible to fire that turn. For most units, there is a 33%

chance it will become setup the first turn following unlimbering. This chance increases to 66% in the second turn and 100% on the third turn. For artillery units with quality A, the first turn chance is 66%.

Artillery Capture

It is possible to capture enemy artillery, either as a result of melee or by overrunning the artillery with charging cavalry. While the captured artillery is stacked in the same hex with a unit of the opposing side, it can be turned and fired. Fire in this case is automatically halved and the battery cannot be moved to another hex. If the artillery unit is abandoned, then the owning side can recrew the battery and use it normally. Captured artillery units count full value towards victory conditions.

Optional Line Movement Restriction

This is an Optional Rule that causes infantry units that move in Line formation to have a chance of becoming Disordered. The base probability for this is determined by the Line Movement Disorder Parameter Data value for the nation of the unit moving. This probability is modified by the following:

- If the unit is Quality A, then 10% is subtracted from the probability.
- If the unit is Quality B, then 5% is subtracted from the probability.
- If the unit is Quality D, then 10% is added to the probability.
- If the unit is Quality E, then 20% is added to the probability.
- If the unit is Quality F, then 30% is added to the probability.

Cavalry Charges



Cavalry Charges are an effective way to advance your cavalry prior to attacking with them in melee. There are several restrictions on the use of Cavalry Charges and the proper use of Cavalry in this way depends on several factors.

How To Conduct A Cavalry Charge

If you choose to charge with your Cavalry, then start by selecting the Cavalry and any Leaders you wish to include in the charge. Using the **Change to Charging** option of the Command Menu or the corresponding button in the Toolbar. After that, move the units as you would normally, but within the restrictions given below. Your goal is to bring the units adjacent to an enemy position so that you have the ability to Melee against this position.

The following rules apply to the Cavalry Charge Phase.

- Only un-Disordered and un-Routed Mounted Cavalry units, and Leaders in the same hex as such Cavalry, can perform a Cavalry Charge.
- Charging Cavalry and accompanying Leaders can move up to their full movement allowance during a Cavalry Charge.
- Charging units must move in the direction of their facing and no changes of facing are allowed during a Cavalry Charge.
- Units which cannot otherwise move, such as Fixed units, cannot charge.
- Cavalry which becomes Disordered during their movement can continue charging.
- During a charge, Cavalry can possibly overrun enemy Skirmishers in Clear and Field hexes (see details below). They can also overrun enemy Leaders and Supply Wagons in hexes by themselves.
- At the end of the player's turn, Cavalry units which moved using the Cavalry Charge are automatically Disordered.
- Under the right conditions, Cavalry units which perform a charge are given triple strength value, by default, when melee attacking in the same turn (see [Meleeing](#) for details).

Cavalry Overruns

During a charge, Cavalry can possibly overrun Clear and Field hexes containing only enemy Skirmishers or uncrewed Artillery. When this is attempted, there is a chance that the enemy units will be eliminated. When the attempt fails, the Cavalry units are prevented from further movement in that turn (although they can melee attack in the same turn).

Cavalry will overrun defending Skirmishers whenever their strength is equal to or greater than the strength of the Skirmishers.

An overrun can not occur if there is an Obstructed hexside between the Cavalry and the Skirmishers (see the [Movement Phase](#) for a discussion of Obstructed terrain).

Enemy leaders in hexes by themselves are automatically overrun and considered captured.

Enemy Supply Wagons by themselves are automatically overrun. They become captured but lose half their strength.

Uncrewed Artillery



Unlimbered Artillery by itself is automatically overrun and becomes Uncrewed. In this state, the crew of the Artillery unit is considered to have taken shelter, either under their guns or with friendly forces. While the Artillery unit is Uncrewed, it cannot be moved or fired. If at some later time, Infantry on the same side as the Artillery unit return to this hex, then the crew

is considered to have returned to their guns and the Artillery unit can be used again.

Note that charging Cavalry has two options when encountering unlimbered enemy Artillery by itself. It can choose to overrun the unit, thus rendering it Uncrewed, or it can choose to stop and melee attack the Artillery unit in the same turn. If it wins this melee, then the enemy Artillery unit is eliminated.

Defensive Fire



Defensive Fire occurs either during the Defensive Fire Phase or when using Turns, under the control of the computer. This fire gives the player a chance to fire on the enemy before being fired upon and being engaged in melee. It therefore represents the ability of the defender to have "first

fire". No movement is possible during a Fire phase. Defensive Fire is subject to the normal restrictions of firing including facing. However, it is possible for units with Low Ammo to fire Defensive Fire.

How To Fire

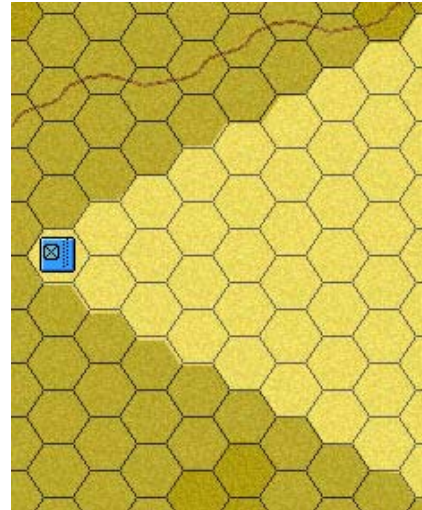
To fire on the enemy, first Select the firing units. As a convenience, you may include Leaders in this selection although they have no effect on fire. Then you right-click on the target hex while holding down the **Ctrl** (Control) key.

Alternatively, you may switch to **Fire Mode** by using a toolbar button, in which case you simply right-click on the target hex. If there is more than one possible target in the target hex, you will be prompted with the Target Dialog to select your target.

Firing effectiveness depends on the Weapon Type of the firing unit, the range from the firing unit to the target hex, the [Fatigue](#) of the firing unit, and the Quality of the firing unit.

Facing Restrictions

A unit must be facing the target unit before it can fire. A unit faces one of 6 hex vertices represented by the facings "Up-Right", "Right", "Down-Right", "Down-Left", "Left", and "Up-Left". For each facing there are two frontal hexsides which are adjacent to the hex vertex. The target unit must be within the area determined by these two hexsides. For example, for a unit facing Right, the unshaded region in this picture indicates those hexes the unit is facing.



Skirmisher units can fire in any direction.

Formation Restrictions

Normally any unit in a hex can fire. However, based on the stacking order within the hex, Infantry in Line formation can prevent the fire of units stacked with it. When a unit occurs after a Line Infantry unit in a hex (that is, displayed below or to the right of the Line Infantry unit in the Hex Info Area), then it cannot fire.

Range and Line of Sight Limitations

A target unit must be within range before it can be fired upon. If you right click on a unit's picture in the Unit List display, it will show you the range of that unit. In addition, unless the firing unit is capable of Indirect Fire (see below), the target unit must be within the Line of Sight of the firing unit. The **Visible Hexes** option of the Display menu can be used to determine the hexes that are visible from the current Hot Spot.

Indirect Fire

Demi Culverins	Artillery
Ordnance	Demi Culverin
English Army	Range 15 (I)
	Victory 36

When you right click on a unit in the HexInfo Area, you may see the notation **(I)** following the unit's range. This indicates that the unit is capable of Indirect Fire. A unit capable of indirect fire can fire on any hex within its range that it is facing regardless of line-of-sight limitations. However, when an attempt is made to fire on a hex using Indirect Fire, the target hex may scatter as much as 2 hexes away from the intended location.

Hard and Soft Fire Values

Each weapon is rated according to **hard** and **soft** fire values at various ranges. When the weapon is used to fire against targets without Armor, then the soft fire value is used. When the weapon is used to fire against targets with Armor, or against bridges, then the hard fire value is used.

Firing Fire Modifiers

The following modifiers are applied to the firing unit.

- A unit has 20% is added to its fire value if it has a Quality of A or higher, and 20% is subtracted from its fire value if it has a Quality of E or lower.
- Disordered units fire at half effectiveness.
- Fire from Infantry in Column formation is scaled by the **Column Fire Modifier** Parameter Data value for that nationality.
- 2-Rank Infantry units in normal Line or [Extended Line formation](#) fire at 50% increased effectiveness.
- 2-Rank Infantry units in [Shortened Line Formation](#) fire at 75% effectiveness.
- Skirmisher units fire at 75% effectiveness.
- Artillery fire values are based on the number of guns times 50 in addition to the normal fire value modifiers.
- [Fatigue](#) modifiers apply as described in the section on Fatigue.

Target Fire Modifiers

The following modifiers are applied to the target of ranged fire.

- Target units which have not moved during their turn get a defensive benefit from certain hexsides. The actual benefit is determined by Parameter Data and can be found by using the **Parameter Data** option of the Help menu .
- Target units may get a defensive benefit from the terrain of the hex they are in. The benefit is shown in the Terrain Info box of the Unit List. However, only Skirmisher units get a defensive benefit from Building or Rough terrain.
- The target unit receives a defensive benefit when it is at a higher elevation than the firing unit. This benefit is normal for a single elevation change and is doubled for any elevation change of 2 increments or more. The actual value of this benefit can be found in the Parameter Data .
- An unit in Line formation that is fired upon by a firing unit that it is not facing, is subject to an Enfilade fire modifier. The value of this modifier is in the Parameter Data.
- Fire values against Supply Wagons are doubled.

- Artillery fire against Infantry in Column or Block formation is increased by 50%. Infantry fire against Infantry in Column or Block formation is increased by 25%.
- Fire against a Cavalry unit may be modified by the Cavalry Fire Modifier Parameter Data value. The modifier is applied normally to fire at ranges of 6 hexes or less. At ranges of 7 to 12 hexes, half of the modifier is applied. The modifier is not applied at ranges of 13 hexes or more.
- Fire against Limbered Artillery is increased 50%.
- When the target unit is a Skirmisher unit and the total stacking in the hex does not exceed 1/8 maximum stacking, then the fire value is 25% of normal.
- When the stacking in the target hex exceeds 1200 men or equivalent and the **Target Density Modifier** Optional Rule is in effect, then the fire value is modified by $X/1200$ where X represents the stacking value in the target hex.

Skirmisher Modifier

Normally units in one hex block Line of Sight and thus it is not possible to fire through one hex of units to reach another behind it. However, when a hex only contains Skirmishers (or Leaders) then it is possible to fire through that hex and hit another hex of units behind it. When this is done, 20% is subtracted from the fire value representing the reduced visibility caused by the Skirmishers and their fire.

Note that depending on the terrain elevations, it may be possible to fire over other units regardless of whether they are Skirmishers or other units. This occurs when the intermediate units are at a lower elevation than the Line of Sight between the firing and target units. In this case, no modifier applies.

Fire Casualties

Fire casualties are calculated using the standard [Combat Results](#) based on the effective fire value of the firing unit with a Low Combat Value of 4 and a High Combat Value of 20.

Fire results against an artillery target are calculated using the Artillery Fire Parameter Data value. This value is used to convert the nominal fire result in terms of men into a fire result in terms of gun. For example, given an Artillery Fire value of 50, if the fire result against a battery is 5 men, then 10% of the time, this will be converted into a loss of 1 gun and 90% of the time, it will be converted into a loss of 0 guns.

Example: Suppose an Infantry Unit of 340 men equipped with Muskets fires at an enemy infantry unit 1 hex away. The standard range effectiveness of a Musket at range 1 is 6. Thus the standard fire value for the unit would be 2040

($=340 \times 6$). The low end combat result would be 8.16 ($= 4 * 2040 / 1000$) and the high end combat result would be 40.8 ($= 20 * 2040 / 1000$). The actual combat result would be randomly determined between these two extremes. Randomly based on the fractional part of the actual combat result, the combat result is truncated up or down. This if the actual combat result was calculated to be 23.4, then this would determine a combat loss of 23 men 60% of the time and a loss of 24 men 40% of the time.

Armor Modifier

Units with a nonzero Armor value have a reduction in casualties from fire. For a unit with an Armor value of v , their casualties as a result of fire are reduced by $v * 10\%$. Thus a unit with an Armor value of 2 has a 20% reduction in fire casualties.

Pass Through Fire

Normally fire against a stack of units in a hex only affects a single target unit. However, when Infantry in Line formation is fired upon by Artillery, all such units in the target hex are affected by the fire. This represents the ability of artillery fire to penetrate several lines of infantry. When the **Column Pass Through Fire** Optional Rule is in effect, this rule also applies to Infantry in Column formation.

Bridge Damage

A Bridge that is not occupied can be fired upon by Artillery and meleed against by Infantry and Cavalry. The purpose of this is to provide a means for destroying bridges in the game. The combat results from melees are only applied to the Bridge and not the attacking forces. When the strength of the Bridge is reduced below certain values, then the Bridge cannot be crossed. See the section on [Movement](#) for more information about crossing bridges and bridge repair.



Offensive Fire



The purpose of the **Offensive Fire** is to allow units to fire after movement. All fire modifiers and restrictions described in the section on [Defensive Fire](#) apply to the Offensive Fire as well.

Offensive Fire Modifiers and Effects

- Units which fire after movement do so at half effectiveness.
- Units which are Low On Ammo cannot fire using Offensive Fire.

Units which do not fire using Offensive Fire, receive a 20% bonus to the melee strength if they attack in the same turn.

Meleeing



After possible movement and firing, the controlling player may initiate melee attacks against enemy units in adjacent hexes. In order for a unit to be committed to a melee attack, they must be facing the defending hex.

How To Melee

You commit your units to a Melee by attempting to move them into a hex containing enemy units. You can take units from multiple locations and add them to the same melee as long as they are all adjacent to the defending hex. Once you have added all of your attacking units, you resolve the Melee using the **Resolve Melee** command of the Melee Menu, or the corresponding toolbar button.

Certain restrictions apply to units that are committed to a Melee attack. Fixed and Routed units cannot Melee attack. Units must be Facing the hex they are attacking. Infantry units cannot Melee attack Cavalry. Artillery and Supply Wagons cannot Melee attack. A unit cannot Melee attack a hex they could not legally move into (it is not possible to Melee attack across a Creek hexside for example). Except for Cavalry, units may only Melee attack once in each Melee Phase or Turn. The total number and strength of the attacking units may not exceed the stacking limitations of the defending hex.

Melee Modifiers

Melees are calculated using total number of men of the attacking side and the total number of men of the defending. Modifiers may be applied to the calculation of the defending men.

- Each defending Artillery gun has a melee strength per gun given by the Artillery Melee value in the Parameter Data.

- Routed and Isolated units have their defending strength divided by 2. However, units which are Routed and Isolated defend with a strength of 0.
- Supply Wagons defend against melee with a strength of 0.

Modifiers are applied to the melee strengths.

- If a unit has a non-zero Melee value of m , then $m \cdot 10\%$ is added to its melee strength.
- If no attacking units have fired in that player's turn, then 20% is added to the attacking strength.
- If there are defending units that have not fired in the current turn, but the units are able to fire on the attacking units, then 20% is subtracted from the attacking strength.
- If the attacking units have a Leader with them, then 20% is added to the attacking strength.
- If the defending units have a Leader with them, then 20% is added to the defending strength.
- If the defending units are attacked (by a non-Leader) from a hexside they are not facing, then 40% is added to the attacking strength.
- The largest hexside modifier of all of the hexsides the attackers are attacking through is applied to the attacking strength.
- Melee attacks against higher elevations have a modifier equal to the elevation change (in elevation increments) times the Elevation Modifier (see the Parameter Dialog for this value).
- [Fatigue](#) modifiers apply as described in the section on Fatigue.
- If the unit of lowest Quality on a given side has Quality of A or more, then that side receives a 20% bonus. If the unit of highest Quality on a given side has Quality of E or less, then that side receives a 20% penalty.
- When the defending units are in a Chateau hex, the attacking strength is reduced by 50%.
- Any attacking unit which is Disordered has its attacking strength reduced to 1/3 of normal.
- Any defending units which is Disordered has its defending strength reduced to 2/3 of normal.
- When units are carrying weapons that have no bayonets, as indicated in the Parameter Dialog for that weapon, then their melee strength is reduced to 1/3 of normal.

Cavalry Charge Rules

Certain melees are considered to be Cavalry Charges. When this occurs, the attacking strength of eligible Cavalry is increased by a factor which is by

default 3. The specific factor used is determined by Parameter Data. For a Cavalry Charge to occur, the following rules must hold:

- The attacking Cavalry units must have moved using the Cavalry Charge procedure.
- The melee attack must not be into Obstructed terrain or across Obstructed hexsides.
- The defending units must not consist entirely of Infantry in Block formation with Leaders and/or Cavalry. However, if only Skirmishers, Artillery, and Supply Wagons occupy the defending hex with Infantry in Block, then the charge is negated.
- The defending units must not consist entirely of Skirmishers and Leaders in a Building hex.
- In the case of Irregular Cavalry units, the defending units must contain at least one Skirmisher unit, Routed unit, or Artillery unit.

Special Cavalry Rules

The following rules apply just to Cavalry engaged in melees. These rules are in addition to the Cavalry Charge Rules.

- Cavalry cannot melee attack into Chateau hexes.
- When Heavy Cavalry melee attacks, its strength is increased by 25%.

Cavalry Melee Continuation



When Charging Cavalry units win a Melee, they have the opportunity to continue moving and meleeing for a total of 3 additional hexes, by default. The maximum number of times that Charging Cavalry can melee is determined by Parameter Data. During this time they can move into empty hexes that they are facing and they can melee additional enemy units,

including those that have already participated in a melee that turn. Units that have received this bonus have the words "Can Continue" shown in their unit box.

Melee Resolution

The final resolution of the melee is done using the standard [Combat Results](#). The adjusted defending strength is used to calculate attacker casualties using a Low Combat Value of 40 and a High Combat Value of 160. The adjusted attacking strength is used to calculate defender casualties using a Low Combat Value of 20 and a High Combat Value of 100.

The default melee resolution is that the loser is the side with the greater calculated casualties (defenders win ties). **Note:** these calculated casualties

may be different from the casualties reported to the player. This difference is based on how the calculated casualties are apportioned to the units involved in the melee. In general, the actual losses that the player sees as a result of the melee will be related to the casualties calculated internal to the main program, but will not be exactly the same. So in some cases the player will see a defender retreat when the attacker takes higher actual losses.

The retreat determination is then modified by several factors:

- Cavalry that is charging infantry in blocks can only win the melee if they do not suffer casualties.
- Defenders in a Chateaux hex are not subject to retreating from a melee.
- If the defenders in a melee do not lose the melee, then they cannot suffer more casualties than the calculated number of attacking losses. This rule is necessary because the calculated number of attacking losses can exceed the strength of the attacking force.
- If the attacking force is eliminated by the melee, it cannot win the melee.
- Unless the Optional "No Retreat Overruns" rule is selected, then the defenders are allowed to retreat into a hex containing only enemy leaders, skirmishers, and/or supply wagons if that is the only hex available for retreat. When this happens, the enemy units in that hex are eliminated. The Optional "No Retreat Overruns" rule prevents enemy skirmishers from being overrun, but allows overruns of enemy leaders and supply wagons.

Melee fatigue losses are 50% more than normal and, in the case of the melee loser, fatigue losses are double. The melee defender is subject to normal Morale Checks based on their losses and must automatically take a Morale Check at the end of the Phase or Turn if they lose the melee.

Example: Suppose an infantry unit of 450 men melee attacks an enemy infantry unit of 230 men. Two combat results are determined. The attackers would determine a low end casualty value of 9 ($= 20 * 450 / 1000$) and a high end casualty value of 45 ($= 100 * 450 / 1000$). The casualty loss of the defenders would be randomly determined between these two extremes. Likewise, the defenders would determine a low end casualty value of 9.2 ($= 40 * 230 / 1000$) and a high end casualty value of 36.8 ($= 160 * 230 / 1000$). The casualty loss of the attackers would be randomly determined between these two extremes.

Armor Modifier

Units which have a nonzero Armor value have their casualties reduced in Melee. Given an Armor value of v , the unit will have their casualties reduced $v * 10\%$. For example, a unit with an Armor value of 2 will have a 20% reduction in casualties in melee.

Special Skirmisher Resolution

When Skirmishers are defending in melee against non-Skirmisher attackers, they take losses which are 1/5 of the normal value, but always retreat. If their attackers also consist of Skirmishers, then the attackers take 1/5 normal losses, but the retreat resolution is calculated normally. These special Skirmisher rules only apply when there is no more than 1/8 of the maximum stacking limit in the defending hex, or respectively in the total number of attackers.

Bridge Damage

A Bridge that is not occupied can be fired upon by Artillery and meleed against by Infantry and Cavalry. The purpose of this is to provide a means for destroying bridges in the game. The combat results from melees are only applied to the Bridge and not the attacking forces. When the strength of the Bridge is reduced to 0, then the Bridge cannot be crossed.



To melee a Bridge hex, first select it, then pull down the Melee menu and select **Begin Melee**. Then select the attacking units and pull down the Melee menu and select **Add to Melee**. Resolve the melee using the normal procedure - either via the Melee menu or the Resolve Melee button on the toolbar.

It is possible to repair Bridges in the game using Pioneers (see the [Movement](#) section under **Bridge Repair**).

Command

Command refers to the influence leaders have over the state of the forces under their command. Good use of Command will result in units being better able to move and fight, while Command failures will result in reduced capabilities.



Each Leader is assigned a default **Command Rating** ranging from **A** (best) to **F** (worst). This rating can be affected in a positive way by the Leader's commander (if he has one) provided the Leader is not Detached. At the beginning of each player's Movement Phase, a **Command Test** is performed for all leaders currently on the map. The Command Test begins with the highest commanding leaders on the map and proceeds downward through the command hierarchy. Each Leader's Command rating is translated into a number by converting A to 6, B to 5, and so on down to F to 1. This number is compared to a random die roll from 1 to 6. If the Leader's number is greater than or equal to the die roll, the Leader has passed the Command Test for that turn. A Leader that has failed his Command Test will have his Command rating displayed in Yellow in the Hex Info Area (see the Main Program Help File). A Leader which passes his Command Test will pass a +1 **Command Bonus** modifier down to the Command ratings of his subordinate commanders (except to Detached Brigade Leaders). If a Leader receives a Command Bonus from his superior and passes his Command Test, his Command rating will be recorded as the higher number for that turn. For example, a Division leader with a nominal Command rating of C which receives a +1 Command Bonus from his superior and passes his Command Test, will have a Command rating for that turn of B. In addition, a Leader which passes his Command Test will pass a Command Bonus down to his subordinates which is one more than the Command Bonus he received. A Leader which fails his Command Test passes no Command Bonus to his subordinates regardless of any Command Bonus he had received.

Here is an example. Suppose the command hierarchy at a battle consisted of

- Army commander: Leader 1. Command Rating of A (=6).
- Corps commander: Leader 2. Command Rating of C (=4).
- Division commander: Leader 3. Command Rating of D (=3).
- Brigade commander: Leader 4. Command Rating of E (=2).

The Command Test begins with Leader 1 whose number for the Command Test is 6. Thus under normal circumstances, Leader 1 passes his Command

Test this turn. Leader 1 passes a Command Bonus of 1 to Leader 2 which gives Leader 2 a number of 5 ($= 4 + 1$) for his Command Test. Suppose that the die roll is 4 and thus Leader 2 passes his Command Test giving him a Command Rating of B for this turn. Leader 2 passes a Command Bonus of 2 to Leader 3 which gives Leader 3 a number of 5 for this turn. If the die roll is 5 or less, then Leader 3 will pass his Command Test this turn and will pass a Command Bonus of 3 to Leader 4 which gives Leader 4 a number of 5 ($= 2 + 3$) for his Command Test. Suppose that the die roll is 6 and thus Leader 4 fails his Command Test and keeps his nominal Command Rating of E for this turn.

Recovery From Disorder

After all Leaders have been through the Command Test, they are used to determine if Disordered units become un-Disordered that turn. A Detached unit is given a value of 1 for the **Test for Disorder Recovery**. A non-Detached unit whose Leader has passed his Command Test is given a value of 1 plus the current numerical Command Rating of his commander. A non-Detached unit whose Leader has failed his Command Test is given a value of 1. If a random die roll is less than or equal to this value, then the unit becomes un-Disordered.

Skirmisher Rule

In addition to the normal test, Disordered Skirmisher units of non-Light, non-Guard units are only eligible to recover from Disorder if they are within 5 hexes of their parent unit.

Night Turns

During Night turns, all Leaders and units have a Command value one less than normal. Thus, a Leader with a Command Rating of A would have a numerical rating of 5 during Night turns and a Detached unit would have a value of 0 in the Test for Disorder Recovery (and thus be unable to become un-Disordered).

Morale

Morale refers to the mental state of the fighting units and the effect leaders have on restoring that state in the forces under their command. Units with good Morale and with inspiring leaders will fight better than units with low Morale or uninspiring leaders. Often a smaller force can overwhelm a larger one if it has



superior Morale.

Each unit is assigned a Quality value ranging from **A+++** (best) to **F** (worst). This Quality value is the basis for determining the unit's current Morale. Each Leader is assigned a Leadership value ranging from **A** (best) to **F** (worst). This Leadership value determines the extent the leader will be able to affect the Morale of the units under his command.

When a unit suffers casualties due to combat, it may be subject to a Morale Check. This determination is based on a random number R from 0 to 1, the number of casualties taken C, and the strength of the unit S. A base strength B is calculated as

$$B = S / 10$$

If the base strength is less than 25, it is made equal to 25 (affecting units whose strength is less than 250 men). The Morale Check is then triggered when

$$R < L / (L + B)$$

For example, when a unit with 500 men takes a 25 man loss, the probability that it will take a Morale Check is 1/3, equal to 25 / (25 + 50).

In addition, units with Fatigue level 900 (Maximum Fatigue) that take a Fatigue loss also are required to take a Morale Check.

A unit which takes a Morale Check will become Disordered if it passes the Morale Check or Routed if it fails. The Quality value of the unit is used as the base value for Morale by converting A+++ to 9, A++ to 8, A+ to 7, A to 6, B to 5, and so on to F to 1. Modifiers are applied to this base Morale to obtain the final Morale value for the Morale Check.

- If the unit is stacked with a Leader, then 1 is added to the Morale.
- If the unit is Low On Ammo or Out Of Ammo, then 1 is subtracted from the Morale.
- If it is a Night turn, then 2 is subtracted from the Morale.
- If the unit has Medium Fatigue, then 1 is subtracted from the Morale.
- If the unit has High Fatigue, then 2 is subtracted from the Morale.
- If the unit has been fired upon Enfilade, then 2 is subtracted from the Morale.
- If the unit is Disordered, then 1 is subtracted from the Morale.
- Skirmishers have 1 subtracted from the Morale.

The resulting Morale value is compared with a random Die Roll from 1 to 6, and if the Die Roll exceeds the Morale value, then the unit fails the Morale Check. A unit that fails the Morale Check during Defensive Fire becomes Disordered, while a unit that fails the Morale Check during any other situation becomes Routed. If a Routed unit fails the Morale Check, it stays Routed, but also loses a number of men based on the amount the Die Roll exceeds the

Morale, times 25 for Infantry and Cavalry, which is reported as **lost stragglers**. Unlimbered Artillery is not subject to routing.

When a unit routs, all units in the same hex as the unit and all units in adjacent hexes to the unit must also take a Morale Check. If any units in adjacent hexes fail the Morale Check, then this process is carried over into hexes adjacent to those hexes.

Recovery From Rout

At the beginning of a player's turn, Rally Checks are performed on Routed units to see if they Rally. Routed units which Rally become Disordered and are eligible to become un-Disordered starting with the next turn. Again the Quality of the unit is the base value for Morale for the Rally Check. These Modifiers are applied to this value to result in the final Morale value.

- If the unit is stacked with a Leader of the same organization or a higher organization as the unit and if the Leadership rating of the Leader is higher than the Morale value, the Morale value is set equal to that rating. If the Leadership rating is already equal to the Morale value, then 1 is added to the Morale value.
- If it is a Night turn, then the Morale value of the unit is divided by 2 with fractions rounded up (for example 5 becomes 3).
- If it is a Day turn, then the Morale value may be affected by Corps and Army Leaders in adjacent hexes using the same process for Leaders in the same hex.

A random Die Roll from 1 to 6 is compared with the resulting Morale value, and if the Die Roll is less than the Morale value, the unit becomes un-Routed.

Skirmisher Rule

In addition to the normal test, Routed Skirmisher units of non-Light, non-Guard, non-Independentc units are only eligible to recover from Rout if they are within 5 hexes of their parent unit.

Fatigue

Fatigue refers to the detrimental effects combat has on the physical condition of the fighting units.

Fatigue values range from 0 (none) to 900 (highest). Within this range, they are further divided into Low Fatigue (0 to 299), Medium Fatigue



(300 to 599), and High Fatigue (600 or higher). Leaders do not suffer from Fatigue. Fatigue values represent the *Combat Fatigue* of the unit and are not intended to represent the simple physical fatigue of being *winded*.

When units are fired upon, they may suffer a Fatigue loss as a result. Furthermore, units participating in Melee also suffer Fatigue losses as a result of combat. Units with a Fatigue level of 900 cannot have their Fatigue value increased further, but whenever a Fatigue loss is suffered by such a unit, they must take a [Morale](#) Check at the end of the Phase.

If a unit has Medium Fatigue, then

- 1 is subtracted from its [Morale](#) value during Morale Checks.
- 10% is subtracted from the melee strength when the unit participates in a Melee attack.
- 10% is subtracted from its fire value when the unit fires.

If a unit has High Fatigue, then

- 2 is subtracted from its Morale value during Morale Checks.
- 20% is subtracted from the melee strength when the unit participates in a Melee attack.
- 20% is subtracted from its fire value when the unit fires.

If a unit has Maximum Fatigue, then

- 40% is subtracted from the melee strength when the unit participates in a melee attack.
- 40% is subtracted from its fire value when the unit fires.

Recovering Fatigue

A unit may be eligible to recover Fatigue at the beginning of a player's Turn provided it has not Moved, Fire, participated in Melee, or been Fired upon with any effect from the time of the player's previous Turn. For each such unit a random value from 0 to twice the applicable recovery rate, determined by Parameter Data associated with the current battle, is subtracted from the unit's Fatigue value. See the Parameter Data Dialog in the Main Program Help File for the recovery rate values.

Supply

Supply refers to the ammunition that units have available to fire during the battle. A unit may become Low On Ammo or Out Of Ammo during the battle reducing or eliminating their ability to fire their weapons. Supply Wagons are used to maintain supply



levels for the forces on the map. Each unit of strength of a Supply Wagon represents enough ammunition to resupply 10 men.

Each time an Infantry unit fires, there is a certain probability that this will result in a reduction in the unit's ammunition level. The ability for Artillery units to fire is based on the Ammo Level for their side. If the Isolation Effects Optional Rule (see the Main Program Help File) is being used, then Artillery units can also become Low or Out Of Ammo when Isolated.

The probability chance that a unit will suffer a loss of ammo while firing is determined by Parameter Data. This probability is halved when the unit is firing Defensive Fire under the control of the computer.

A unit that is Out Of Ammo cannot fire again until it is resupplied. A unit that is Low On Ammo can only fire during the Defensive Phase. Being Low or Out Of Ammo affects the [Morale](#) of the unit.

Units can become resupplied at the beginning of the player's Turn provided they are not Routed and they can trace a path no longer than 5 hexes long which does not go through enemy units or empty hexes in their Zone-Of-Control to a friendly Supply Wagon. This resupply will reduce the Strength of the Supply Wagon by 1 unit for every 10 men in the Unit. Supply Wagons that are reduced to a Strength of 0 are automatically removed from the map.

Supply Sources

In a scenario, there may be one or more Supply Sources for a given side. These are used for the optional Isolation rules (see below) to determine if units of that side are [Isolated](#). Supply Sources are only valid if they are not occupied by enemy units, but if those enemy units are eliminated or displaced, then the Supply Source becomes valid again. Supply Sources cannot be destroyed and are never used up.

Isolation

Isolation is an Optional Rule that can be used to simulate the effects of units being surrounded and cut off. Under this rule, if a unit cannot trace a line of hexes free of enemy units or their Zone-of-Controls to either the edge of the map or a friendly Supply Source, then they are considered Isolated. When a unit is Isolated, the following effects apply:

- Isolated units to have their strength divided by 2 when defending in a melee.
- Isolated leaders receive no benefit from their commanders during command checks.
- When an Isolated Artillery unit fires, it may become Low or Out-Of-Ammo. The Artillery unit will become resupplied when it becomes non-Isolated, unless the Artillery supply level for its side is zero.

Combat Results

A common combat results calculation is used for both fire and melee results. The combat results calculation is based on four parameters: a combat value, a modifier, a **Low Combat Value** (LCV) and a **High Combat Value** (HCV). For fire combat, the combat value is the adjusted fire value of the firing units. For melee combat, the combat value is the adjusted strength of the opposing side. The given modifiers are applied to the given combat value to arrive at the effective combat value. The Low Combat Value and High Combat Value are the extreme possible casualties resulting from a base-line combat value of 1000. The effective combat value is used to scale these accordingly resulting in low and high possible casualties. Finally a random value is selected between the low and high casualty values to arrive at the final combat result.



For example, given a combat value of 400, a modifier of 25%, a Low Combat Value of 5 and a High Combat Value of 25, the effective combat value would be 500 ($= 400 + 25\%$). This would be $\frac{1}{2}$ of the base-line combat value of 1000. Thus the low casualty value would be 2.5 ($= 5 / 2$) and the high casualty value would be 12.5 ($= 25 / 2$). The resulting casualty value would be randomly generated between 2.5 and 12.5 for this combat. Finally, based on the fractional part of the casualty value, it is randomly rounded up or down. For example, if the casualty value was calculated to be 3.7, then 30% of the time this is rounded down to 3 and 70% of the time is rounded up to 4.

Artillery losses resulting from enemy artillery and infantry fire is calculated on the basis of 1 gun equal to the Artillery Fire Parameter Data value. Combat losses less than this value result in a probability of a 1 gun loss proportional to the value. Thus a combat loss of 5 men applied to an artillery unit would result in a probability of $5/50 = 10\%$ that a one gun loss would occur, assuming an Artillery Fire value of 50.

Fatigue results are calculated as random values between the casualty value and 3 times the casualty value.

When Morale Checks are applicable, they are determined based on a probability using the given loss as:

$$\text{loss} / (\text{loss} + \text{base})$$

where base = strength-of-unit / 10 but limited to be no lower than 25.

Thus a unit of 250 men that takes a loss of 25 men has a 50% chance of requiring a morale check and a unit of 1000 men that takes a loss of 25 men has an 20% chance of requiring a morale check.

When the optional rule **Alternative Calculation** of combat results is chosen for fire or melee results (see the Main Program Help File), then the resulting casualty value is based on the average of two default casualty calculations. This produces values which are more likely to be in the midrange of the casualty interval rather than uniformly distributed.

Weather and Conditions

There are two ways that weather and ground conditions are implemented in the game. The first way is through the use of ground **Conditions**. There are three ground Conditions: Normal, Snow, and Frozen. Under Frozen conditions, streams and rivers are frozen and can be crossed as though they were clear terrain. Ground Conditions are established by the scenario designer on a per-scenario basis and do not change throughout the playing of a scenario.



Weather can vary though a scenario and change at certain times specified in the Parameter Data. Each Weather state has a descriptive name associated with it such as Mud, Soft, Foggy, etc. Each Weather state has several parameters associated with it that affect the normal parameter data such as:

- **Visibility** – the maximum visibility associated with the weather, where 0 signifies no change.
- **Movement** – a percentage value that modifies the normal movement costs.
- **Attacker Modifier** – a percentage modifier, usually negative, that modifies the normal value of attackers in melees.
- **Artillery Modifier** – a percentage modifier that affects Artillery fire at ranges of at least 5 hexes.

A Weather state can have a flag associated with it signifying that Cavalry Charges are not possible under this weather condition.

The Campaign Game

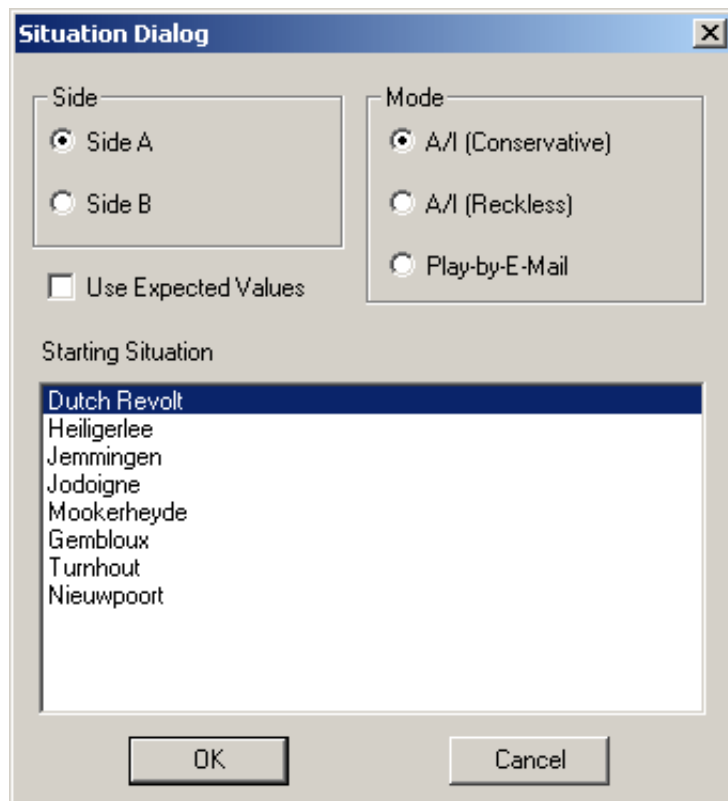
The **Campaign Game** links together individual battles and their outcomes to form a complete campaign. To begin or continue a campaign game, run the **Campaign Front End** from the program group of the game.

A campaign consists of a series of **Situations**. Each Situation presents both sides in the campaign with a list of possible **Choices**. Based on the selections made among these choices, a particular **Battle** will be fought by the two sides. Depending on the **Outcome** of the battle, the campaign will branch to another Situation in the campaign, or possibly to the campaign **Conclusion**.

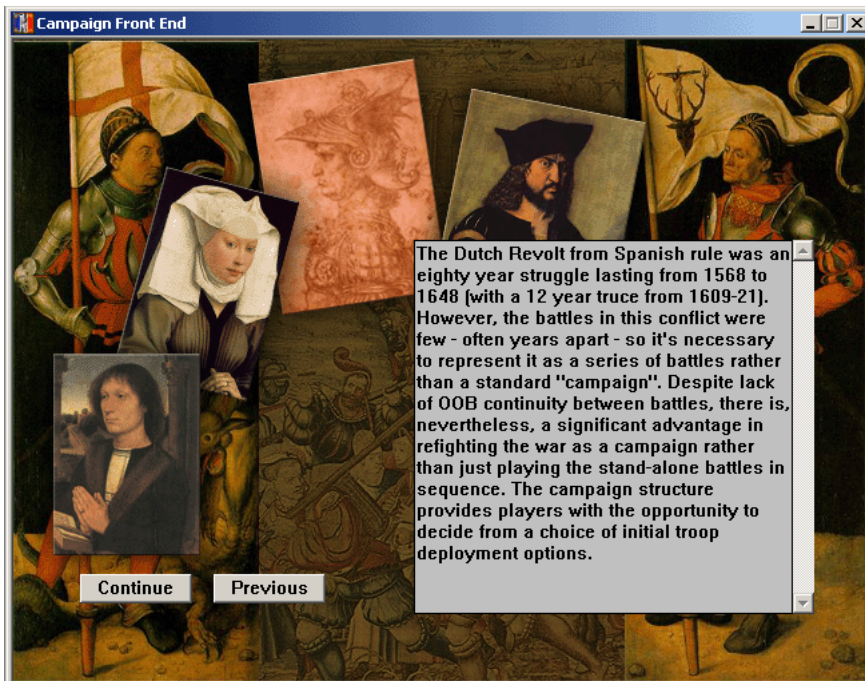


The Campaign Front End begins by asking you if you want to start a new campaign or continue an existing one. Of course, the first time you run the Front End, you'll select that you want to start a new campaign. Depending on the game, there may be one or more campaign games included. In addition, you can create new campaigns by using the **Campaign Editor**.

When you start a new campaign, you will be asked to specify a filename for the campaign. Note that campaigns are stored in files with the extension `cpf`. You should use a name that is descriptive of the campaign so that you can have several campaigns going at one time and keep track of them.



When you start a new campaign, you will be prompted by the **Situation Dialog** to pick the side you want to play and other settings. There are three possible Modes you can select. If you select **A/I (Conservative)** then you will play against the computer and the computer will be making optimal choices during the campaign. If you select **A/I (Reckless)**, you will also be playing against the computer, but in this case, the computer will be making random choices during the campaign. Often this results in more interesting results, although not necessarily the most competitive play. If you select **Play-By-E-Mail**, then you can play the campaign against a human opponent using e-mail to send the turns back and forth. During the campaign, you normally will be transferred to the Main Program to fight battles. The victory outcome of these battles will determine the next situation you encounter in the campaign. If you select **Use Expected Values**, then instead of fighting each battle using the Main Program, an average victory outcome will be used to immediately branch to the next situation in the campaign. You will use this option, when you want to very quickly jump from situation to situation in the campaign without having to fight each battle in detail. Finally, you can select from a list of situations in the campaign. Normally you will select the first situation, as this is the starting point for the campaign, but you also have the option of selecting an intermediate one if you wish to start the campaign somewhere in the middle.



Each campaign begins with an overview. This overview will describe the campaign setting and displays a map of the area over which the campaign will be fought. When a campaign game is played by two human players, both players get to see this screen.



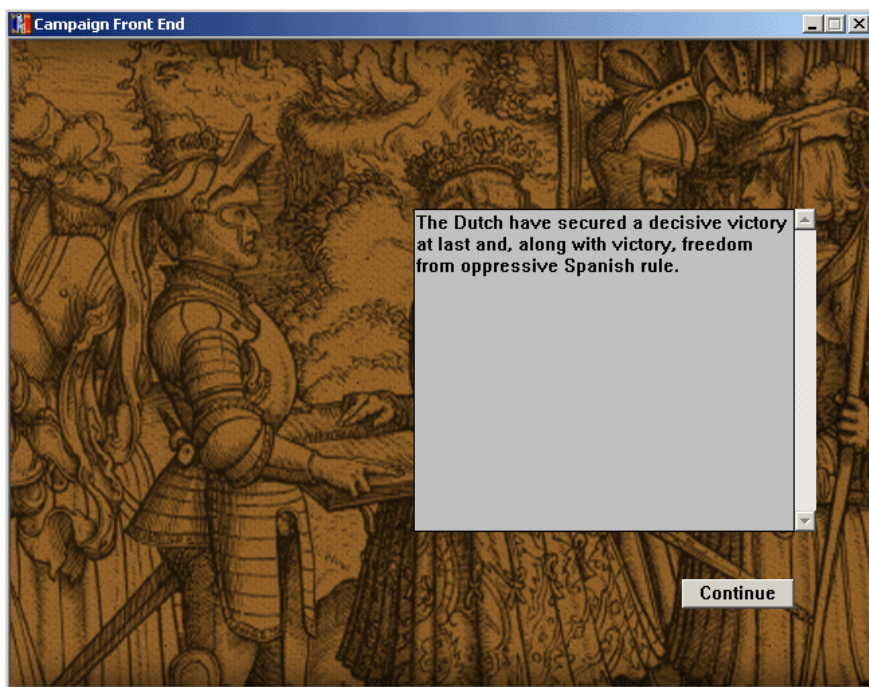
At the beginning of each Situation, a screen is displayed identifying the Situation, showing the various forces involved, and describing the Situation. Both sides of the campaign get to see this screen.



The Decision screen is where you make your choice about how to conduct the campaign. You will be given a list of choices at the top of the screen. As you click on each choice, a description of that choice is displayed and the map is updated to illustrate that choice. You should keep in mind that in general, no situation has a "best" choice. The best choice will be determined by the corresponding choice made by your opponent, something you won't know until both sides have decided. So you should weigh the possible outcomes you feel are associated with each choice, and decide which one you wish to pursue in that situation. Note that each side in the campaign sees a different screen at this point. Each side only sees the choices for their side and will be unaware of the choice made by the other side.



Once both sides have made their choices, the resulting battle is determined and each side will get a message describing the battle. When Use Expected Values is selected, this message will have a Cancel button in addition to an OK button. If you select the OK button, then the Expected Value of the battle will be used to determine the campaign branching. If you select the Cancel button, then the game will transition to the Main Program so that the current battle can be fought in detail.



In general, each battle outcome will cause the campaign to branch to the next Situation in the campaign. However, depending on the outcome and the Situation, the campaign will eventually branch to a terminating situation. Here, the overall outcome of the campaign is determined and described.

When you play a campaign using Play-By-E-Mail, then you will receive messages at various times indicating that the campaign file is ready to be e-mailed to your opponent. You should mail your opponent the `cpf` file containing the campaign at this point. Note that this single file contains all information associated with your game and that no other files need be included.

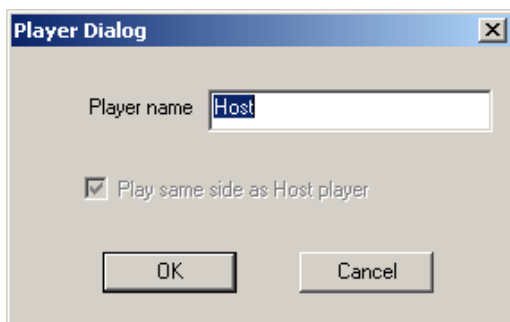
Summary of Campaign Play Modes

There are a wide variety of ways that campaigns can be played. For the briefest possible campaign, play against the computer (A/I play mode) and select "Use Expected Values". In this way, a complete campaign can be completed in a manner of minutes. For a longer game and more detail, select "Use Expected Values", but then select a battle to fight in detail by selecting Cancel when the encounter message is displayed. The time required to finish the battle can be varied by choosing Manual or Automatic play mode within the battle itself. In this way, a complete campaign can be completed in an hour or so. Then, for a longer campaign, skip the "Use Expected Values" option and play each battle in detail and in Manual mode. This type of campaign will require a couple of hours to complete. Next, you can play a campaign using Play-By-E-Mail. Note that you can choose the "Use Expected Values" option when playing under PBEM if you just want to see how your campaign choices play out against a real opponent. This approach would require a day or more to complete a campaign. Again, you can choose the "Use Expected Values"

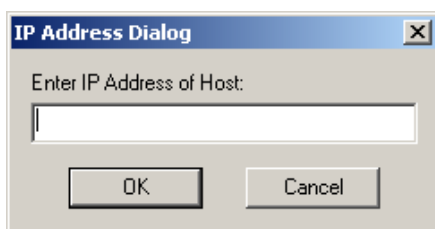
option, but then Cancel this option at the time of a battle to play out the battle in detail. In this way, a PBEM campaign would be about the same length of time as a normal PBEM battle if you selected a single campaign battle to play in detail. Finally, to get the longest possible campaign, you would skip the "Use Expected Values" option which could result in a campaign lasting a very long time. In summary, a campaign can be played in a manner of minutes, days, or even years in the extreme cases.

Network Play

This section describes the details associated with multi-player **Network Play**. Microsoft's Direct Play is used for this purpose. The TCP/IP protocol is used to connect the computers being used. If you are using a firewall to connect to the Internet, you must configure it before you can connect using Direct Play. Information on how to do this can be found in this Microsoft technical article: [DirectX: Ports Required to Play on a Network](#).



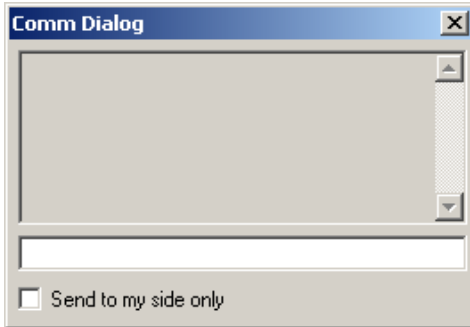
The Player Dialog is displayed so that each player can specify their name and to specify if they want to be on the same side as the Host player or the opposing side.



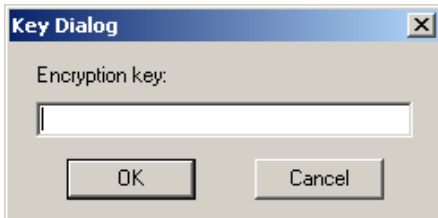
The Caller will be prompted to enter the IP Address of the Host computer. The Host player must determine their IP Address and communicate this to the other players.

One way for the Host player to determine their IP Address is to perform the following steps:

- Click on **Start**, then **Run**, and enter **cmd**.
- In the window that opens, enter **ipconfig**.



Once a connection has been established, the Comm Dialog will appear and allow both players to communicate with each other. You can type messages in the area at the bottom of the Comm Dialog and press Return to send them. All messages are displayed in the top area of the Comm Dialog prefaced by the name of the player sending the message. In Multi-Player Network Play games, you can limit the sending of the message to players of your side, by selecting the option at the bottom of the Comm Dialog.



If you are the first Caller of the opposing side, you will be prompted to specify an Encryption Key to be used to encrypt the battle file on the Host computer. This encryption will prevent your opponent from trying to access the battle file in your absence. Be sure to remember your Encryption Key and specify it exactly the next time you open an existing battle or else a read error will occur. If you trust your opponent, it is OK to leave the Encryption Key blank.

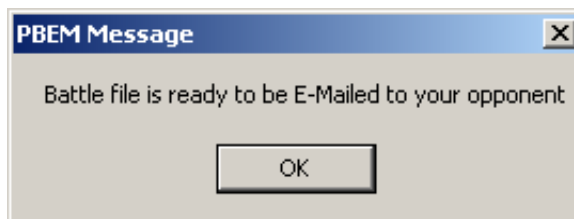
Multi-Player

In general, both sides of a Network game can have more than one person assigned to them. The Host player and the first player to connect playing the opposing side, will be the **Commander** for their respective sides. By default, the Commanders control all units for their side. Additional players on each side can be assigned commands by the Commander. Each player can only move and fire units under their command. The Multi-Player Dialog described in the Main Program Help File describes the actions used to assign commands to players and to manage Multi-Player features.

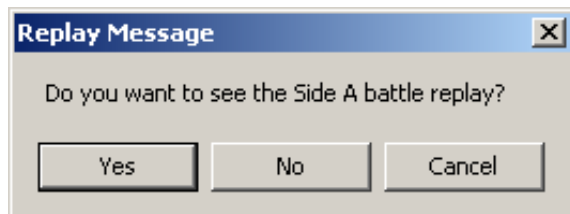
Play By E-Mail

This section describes the details associated with Play-By-E-Mail (PBEM). PBEM is initiated either from the Campaign front-end or through the Play-By-E-Mail option of the Modes Menu (see the Main Program Help File).

When a game is started under the PBEM option, the player starting the battle will be prompted with the New Scenario Dialog (see the Main Program Help File) to select the side they wish to play, the Fog of War option, any change to the Advantage value, and Optional Rules. When control of the game passes to the opposing player, the main program will save the PBEM game in a file with extension `bte` and notify the player that the file can now be E-mailed to their opponent. The player should send the `bte` file either Zipped up or as an attachment in an E-mail.



When the other player receives the E-mail, it is essential that they copy the `bte` file into the appropriate game folder. By default, this game folder is "C:\Program Files\HPS Simulations\name" where "name" is the name of the game, but this can be changed during installation. Once the `bte` is copied, the player can start PBEM mode either from the File Selection Dialog (see the Main Program Help File), or through the PBEM option of the Modes Menu (see the Main Program Help File).



When the player opens the PBEM file, they will be prompted to view the battle replay. If they notice that the replay is not for the opposing side, they have opened their own PBEM file in error and should immediately

select **Cancel**. Otherwise, they can select **Yes** or **No** to either view the replay or advance directly to their turn.

During the battle replay, combat results are reported in a dialog. Select **OK** to close the dialog and continue normally. If you select **Cancel**, the replay will continue but no subsequent combat results will be reported. Pressing the Escape (**Esc**) key will terminate the replay.

When a PBEM battle is saved with the PBEM Encryption Option enabled (see the Settings Menu in the Main Program Help File) or if the file has already been encrypted by the opposing player, then the player will be prompted for an Encryption Key. On subsequent turns, the identical key must be entered by the player in order to read the file. Note that a PBEM battle can be encrypted even after play has begun, but once encrypted, it cannot be converted back into an un-encrypted form.

Credits

Publisher: Scott Hamilton

Developer: John Tiller

Artist: Joseph Amoral

Uniform Graphics: Mark Adams

Background Music: Daniel Lee

Video and User Manual Images:
Julia Tiller



Contact Information: <http://www.hpssims.com> or 408-554-8381

The Renaissance

Game Coordinator: Rich Hamilton

Scenario Designer: Rich White

Scenario Maps: Rich White, Atle Jenssen

Playtesters: Steve Trauth, Kevin Killeen, Doug Fuller, Andrew Moss,
Gary McClellan, Ken Miller